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Internalizing Symptoms and Friendship Stability: Longitudinal Actor-Partner Effects in Early Adolescent Best Friend Dyads

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(Article begins on next page)

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Internalizing Symptoms and Friendship Stability: Longitudinal Actor-Partner Effects in Early-Adolescent Best Friend Dyads

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Review

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Editor's Comments to Author

Q1. One potentially major issue is the inconsistency of results shown in Table 2 (chi-square values listed are inconsistent with indicated p-values and described results), so I urge you to carefully review your SAS output and modify the results to be accurate.

A1. We want to thank the reviewers and editor for their useful comments, as we think they really helped us improving the paper.

Concerning the potential major issue about table 2, we reviewed the SAS output: it turns out we made an error in reporting the Wald Chi-Square values associated with Anxiety and Depression, which were just inverted in the table. Table 2 now reports the correct Wald Chi-Square values, that is 3.23 (non significant) for Anxiety, and 3.93 (significant at $p<.05$) for Depression. No changes were applied to the presentation and interpretation of results in the Results and Discussion sections since they already reflected the correct results.

Q2. Abstract

- line 12 – please say “involved” instead of “entangled” (entangled has a negative connotation)
- line 18 – consider rephrasing as “depressive symptoms predicted lower stability of best friendships over time, whereas best friends’ somatization emerged as a predictor of higher friendship stability. In addition, positive dyadic ...”
- line 30 – replace “on” with “in” before “friendship stability”
- keywords – separate by commas instead of dashes

A2. Ok, we applied the corrections.

Q3. Introduction

- p. 2 – delete “Introduction”
- p. 2 line 28 – change “as” to “such as”
- p. 3 line 10 – add “as” after “such”
- p. 3 line 15 – use semicolons to separate citations
- p. 3 line 21 – place the citation (Hill & Swenson, 2014) at the end of the sentence to improve flow
- p. 3 line 30 – change to read “associated with an increase”; arrange references alphabetically
- p. 3 line 37 – unclear what “more significant number of friends” means, consider deleting and just keeping “larger number of friends”
- p. 3 line 41 – change “unacceptance” to “lack of acceptance”
- p. 3 line 44 – this should read “somatization symptoms and relationships”
- p. 4 and throughout the rest of the manuscript: please arrange multiple references in alphabetical order (by the name of the first author); eg on p. 4 Cillessen comes before Cook which comes before Parker. Please check the whole manuscript for this issue and modify where needed.
- P. 4 line 25 – replace “on adolescents entangled” with “in adolescents involved”
- P. 4 line 28 – delete “choices”
- P. 40 line 50 – replace “In turn” with “In addition”

A3. Ok, we applied the suggested editorial corrections. Multiple references were arranged in alphabetical order throughout the paper.

Q4. Methods

- P. 5 line 26 – it is impossible that the study used anonymous data (ie, no identifiers collected) since you had to match friends' and students' data across the two time points; please delete "and anonymous"
- P. 5 – please include the month(s) in which data were collected, for both T1 and T2
- P. 6, Internalizing symptoms section – please indicate whether items were averaged or sum and provide Cronbach's alpha for each subscale (for your sample)
- P. 6 line 41 – replace "More in detail," with "Specifically," (make this change throughout the document wherever applicable)
- P. 6 line 57 – replace "entangled" with "involved"; make the same change throughout the manuscript
- P. 8 lines 23-30 – specify whether friendship scales were computed by averaging or summing items, and provide Cronbach's alpha for each scale and time point
- P. 8 lines 34-39 – indicate whether the friendship quality scales were averaged across dyad members at T1 only or both time points; if both time points, then provide correlations for each time point
- P. 8 line 43 – delete information about Cronbach's alpha from analyses and results; this should go under each measure as indicated above
- P. 10 line 3 – replace "influence" with "effect"
- P. 10 line 19 – please clarify the time point for the friendship quality variables used in the analyses (T1 only or both T1 and T2 as time-varying covariates?)

A4. Ok, we applied all the suggested editorial corrections. In particular, we added information about 1) scores computation and 2) reliability coefficients (which were deleted from Table 1) in the measures sections. Information about months in which data was collected was added to the "Participants" section. Concerning friendship quality, we added the following sentences to the "Dyadic friendship quality" clarifying use of collected data for each time point: "...Thus, participants who nominated different best friends at T1 and T2 answered the friendship quality questionnaire by reporting about different best-friendship relationships at the two time-points. For this reason, in the present study analyses were performed on participants' ratings as collected at T1, while ratings collected at T2 were not examined." Information about the time-point of friendship quality measures was added throughout the paper. We hope these additions clarifies which time-point was considered in the analyses.

Q5. Results

- Please revise the whole Results section so that you are not using the FQQ and SPI abbreviations – just refer to the variables with their construct names (friendship quality, internalizing problems) or spell out the measures if absolutely necessary
- P. 10 line 50 – replace "in turn" with "in addition" or similar (also, additionally, etc) [in turn implies sequential nature of relationships]
- P. 10 line 55 – unclear what you mean by "minor correlations"; rephrase as "significant correlations"
- P. 11 line 30 – delete "in turn"
- P. 11 line 57 – replace "in turn" with "in addition"; same on p. 12 line 17
- P. 12 line 23 – clarify the time point of friendship quality and include it in interpretations as needed (ie, are these prospective or concurrent effects?)

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A5. Ok, we applied the suggested corrections. In particular, we removed abbreviations and now only refer to construct names. We also added information about the time-point of friendship quality effects in section “Actors and Partners’ Internalizing Symptoms as Predictors of Actors’ Friendship Stability”. See also our answer to comment **Q4**.

Q6. Discussion

- P. 13 line 23 – replace “coherent” with “consistent”
- P. 13 line 50 – rephrase “influencing” with “relation to” [causal language is inappropriate for this observational study]
- P. 14 line 15 – delete “influencing”
- P. 14 line 19 – replace “strong comorbidity” with “moderate correlation”
- P. 14 line 21 – add “may” before “indicate”
- P. 14 line 28 – replace “influence” with “effect”
- P. 14 line 35 – replace “prevalently” with “primarily”
- P. 14 line 44 – it is not clear how you can make inferences about “salience” of internalizing symptoms from your data; rephrasing as “nature of the symptoms” would be better aligned with the rest of the discussion
- P. 14 line 50 – replace “the internalized...” with “internalizing symptoms are not always detrimental to friendships”
- P. 15 line 32 – “among friendship” should be “among friendships”
- P. 15 lines 37-39 – rephrase as “other characteristics that may be important for the stability...”
- P. 15 line 43 – “represent” should be “represents”
- P. 16 line 19 – rephrase first sentence as “This study also had several strengths.”
- P. 16 line 23 – incomplete sentence, rephrase as eg/ “Second strength was the...”
- P. 16 line 28 – replace “influencing” with “relation to”
- P. 16 line 34 – replace “influence of ” with “effects on”
- P. 16 lines 41-44 – rephrase as “highlighting the role of internalizing symptoms in friendship ...”

A6. We applied all suggested editorial corrections.

Q7. Tables

- Table 1 – remove Cronbach’s alpha and place in methods under measures (standard reporting); also use consistent capitalization (positive friendship quality vs friendship conflict are inconsistent); correct capitalization in table title per APA style
- Table 2 – revise table title, something seems missing and it is hard to comprehend (phrase it as the effect of predictors on outcome, not the other way around); add df to chi-square in top of table; verify results – based on the values provided and assuming 1 df, anxiety should be significant but depression should not be significant; if the results were not described correctly in results, revise results and discussion to be accurate
- Table 3 – revise title to be clearer (in line with suggestions above for Table 2), add df
- Table 4 – revise title to be clearer, add df

A7. Ok, we revised the tables: 1) Table 1 was revised by rephrasing the title and by removing reliability information, 2) Titles for tables 2-4 were revised to make them more clear 3) Information

about degree of freedom of Wald Chi-Square tests was added to the tables 2-4. See also our answer to comment Q1.

For Peer Review

Abstract

The present study investigated the stability of friendship nominations over the course of a school year as a function of early adolescents' and their classroom best friends' internalizing symptoms (i.e., depression, anxiety, and somatization). Sample consisted of 156 early adolescents (57.1% female; $M_{age}=12.62$; $SD=0.62$) involved in 78 same-sex best friendship dyads. We assessed best friendship (classroom) nominations at beginning (T1) and end (T2) of the school year. Results of longitudinal analyses performed with the Actor-Partner Interdependence Model indicated adolescents' and their classroom best friends' depressive symptoms predicted lower stability of best friendships over time, whereas best friends' somatization emerged as a predictor of higher friendship stability. In addition, positive dyadic friendship quality predicted greater stability over time. These findings highlight the importance of employing a dyadic framework when examining the role of internalizing symptoms in friendship stability.

Keywords: Friendships, Dyadic Relationships, Peer Relationships, Internalizing symptoms.

Internalizing Symptoms and Friendship Stability: Longitudinal Actor-Partner Effects in Early-Adolescent Best Friend Dyads

Researchers have widely demonstrated that involvement in stable friendships plays a key role in the psychosocial adjustment in childhood and adolescence (Ladd & Price, 1987; Berndt & Keefe, 1995; Ladd, Kochenderfer, & Coleman, 1996; Parker & Seal, 1996; Berndt, 2002; Tani, Tomada, Guarnieri, & Tonci, 2006; Vitaro, Boivin, & Bukowski, 2009; Wojslawowicz, Rubin, Burgess, Booth-LaForce, & Rose-Krasnor, 2006). During early adolescence, from about 12 to 16 years of age, dyadic friendships become more important and especially significant for the psychosocial adjustment (Berndt, 1982), partly due to the biological, cognitive and social changes related to puberty. Preadolescents tend to emphasize the importance of many positive qualities in their friendships, such as closeness, intimacy, loyalty and security (Bukowski, Hoza, & Boivin, 1993; Hartup, 1996; Fonzi & Tani, 1996). High quality friendships tend to predict high stability of friendship relations over time (Berndt, 1986; Bowker, 2004; Bukowski, Hoza, & Boivin, 1994; Fonzi, Schneider, Tani, & Tomada, 1997; Schneider, Fonzi, Tani, & Tomada, 1997; Branje, Frijns, Finkenauer, Engels, & Meeus, 2007; Ciairano, Rabaglietti, Roggero, Bonino, & Beyers, 2008).

Among the individual predictors of friendship stability, internalizing symptoms have been shown to play a relevant role in adolescence (Poulin & Chan, 2010). Indeed, given that internalizing symptoms may be manifested and expressed within interpersonal contexts, they are prone to affect interpersonal partners directly. This may be, in particular, the case for depressive symptoms. In line with the symptom-driven theoretical perspective advocated by Kochel, Ladd and Rudolph (2012), depressive symptoms can have a disruptive effect on relationships because of intensification of perceptions of interpersonal difficulties (Rudolph, Flynn, Abaid, Groot, & Thompson, 2009) and depression-linked behaviors such as social withdrawal from peers (Boivin, Hymel, & Bukowski, 1995; Flynn & Rudolph, 2014).

Consistent with interpersonal theories (Coyne, 1976; Joiner & Timmons, 2009; Rudolph, Flynn, & Abaied, 2008), depressed individuals may also elicit rejection from close others due to their proneness to engage in dysfunctional interpersonal behaviors, such as excessive reassurance seeking, negative feedback seeking or social withdrawal, which may ultimately undermine the stability of their friendships (Klima & Repetti, 2008; Chan & Poulin, 2009) as well as their quality (Rubin, Wojslawowicz, Rose-Krasnor, Booth-LaForce, & Burgess, 2006).

At the same time, recent findings suggest that a mild degree of internalizing symptoms may improve, rather than compromise, adolescents' dyadic friendships (Hill & Swenson, 2014). In particular, when compared to depressive symptoms, anxiety has been shown to be characterized by a more ambiguous relationship with friendship characteristics. Anxiety disorders have been associated with an increase in friendship problems (Biggs, Vernberg, & Wu, 2012; Goodyer, Wright, & Altham, 1990). However, non-clinical anxiety has been shown to predict higher friendship stability, positive friendship quality and a larger number of friends (Rose et al., 2011). Indeed, while anxious adolescents may engage in socially dysfunctional behaviors, they may nonetheless be prone to maintain their current friendship when worried about rejection and lack of acceptance by other peers. Similarly, literature concerning somatization symptoms and relationships with peers is mixed: findings indicate both negative (Rhee, Holditch-Davis & Miles, 2005) and non-significant associations between somatic complaints and social status among peers (Jellesma, Rieffe & Terwogt, 2008).

Although many studies have investigated the role of internalizing symptoms as a predictor of friendship stability at the individual level, in a dyadic friendship, friends' behaviors may be better conceptualized as the result of an interactive process in which the personal characteristics of an individual affect the personal characteristics and choices of his

INTERNALIZING SYMPTOMS AND FRIENDSHIP STABILITY

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or her partner (Cillessen, Jiang, West, & Laszkowski, 2005; Cook & Kenny, 2005; Parker & Asher, 1993). Thus, in a dyadic perspective, friendship choices and maintenance are expected to be affected by traits, behaviors and attributes of both partners (Giletta, Scholte, Prinstein, Rabaglietti, & Burk, 2012). The importance of employing a dyadic framework when studying factors influencing friendship stability is consistent with recent findings demonstrating that individual characteristics tend to be less important than dyadic characteristics in predicting friendship dissolution (Hartl, Laursen, & Cillessen, 2015).

In light of these considerations, the aim of the present study is to investigate the influence of internalizing symptoms (i.e., depression, anxiety, and somatization) as assessed in adolescents involved in a same-sex friendship dyad on the stability of their friendship over time. We have chosen to analyse the data by applying the Actor-Partner Interdependence Model (APIM; Cook & Kenny, 2005; Kashy & Kenny, 2000; Kenny & Cook, 1999) due to the dyadic, interdependent nature of friendship nominations. By accounting for dyadic interdependence among actors' and partners' measures, the APIM allows for the investigation of individual actor and partner effects influencing the actors' outcomes. By using this approach, in our study we evaluated the role of both early adolescents' and their very best friends' internalizing symptoms as actor and partner effects influencing the stability of early adolescents' friendship choices over time. Gender and dyadic measures of perceived friendship quality were additionally included in the model as control variables. Findings suggest the existence of gender differences in the stability of same-sex friendships during early adolescence (Benenson & Christakos, 2003). In addition, our choice to include friendship quality as a control in the model relates to its strong theoretical and empirical connections with friendship stability in pre - and early - adolescence (Betts & Stiller, 2013; Bukowski, Hoza & Boivin, 2004, Schneider, Fonzi, Tani & Tomada, 1997).

Method

Participants

Our initial sample consisted of 340 seventh grade students (53% females; age: $M=12.62$, $SD=0.62$) attending four schools located in an urban area of central Italy. In compliance with the Italian law and the ethical code of the Association of Italian Psychologists, students and parents were informed about the characteristics of the study and provided written consent several weeks prior to the initial data collection. Parents were mailed a letter describing the study and a consent form, which they were asked to sign and return via mail. Students with consent were approached in class, with research assistants describing the study and informing students that their answers would be kept confidential. All students agreed to participate in the research; parental consent rate was 100%. Questionnaires took approximately 30 minutes to complete. Teachers were not present in the classroom during the administration of the questionnaire. No incentives were offered for participation. Questionnaire data was collected at the beginning (T1, October) and at the end (T2, May) of the school year; at each of the two time points, students were asked to nominate their same-sex best friend in the classroom. About 9% students ($n=32$) were either not present at both time points or had missing data (i.e., skipped items) on the study measures (i.e., friendship quality, internalizing symptoms). Mean imputation was used for 6 participants who had two or less items missing per subscale.

For the purpose of this study, analyses were performed on a subsample of 156 participants (57.1% females; age: $M=12.61$ years, $SD=.62$) which, based on classroom best friend nomination, were found to be part of a reciprocal same-sex best friendship dyad at Time 1 (78 dyads, 45 female dyads). In order to investigate possible biases due to significant differences between actual participants and the 184 respondents who were not included in

the final sample, we conducted *t*-tests on the internalizing symptoms and quality of friendship measures: no significant differences emerged between the two samples.

Measures

Internalizing symptoms. Participants' internalizing symptoms were assessed at the beginning of the school year (T1) by administering the Italian adaptation of the Revised Seattle Personality Inventory (Greenberg & Kusche, 1990; Tani & Schneider, 1998). We administered three subscales— i.e., anxiety (6 items), depression (10 items), and somatization (5 items). Example items: “Do you often feel unhappy?” (Depression); “Are you worried about what other people think of you?” (Anxiety); “Do you often have stomach ache?” (Somatization). Participants were asked to rate the frequency of symptoms on a 4-point scale ranging from “never or almost never” (1) to “always or almost always” (4). For each of the subscales, a score was generated by summing items. Cronbach's alpha for anxiety was .77, for somatization it was .65; and for depression it was .79.

Friendship stability. Friendship stability is generally operationalized as a dyadic measure (Ellis & Zarbatany, 2007; Rose, 2011), that is, stability is established when friendship nominations are found to be reciprocated by each member across two or more time points. In the present study, however, friendship stability was operationalized at the individual level: Friendship stability was determined for same-sex members of a reciprocal dyad by evaluating whether their very best friend nomination was consistent over the course of a school year. Specifically, individual friendship stability was assessed using the following procedure. As a first step, reciprocal best friend dyads were identified by administering a classroom-level friendship nomination procedure (Bukowski et al., 1994; Cillessen et al., 2005) at the beginning of the school year (T1). In the administered peer nomination procedure, participants were asked (1) to nominate up to five friends in the classroom, (2) to indicate who their same-sex best friend was among them, and (3) to rate

their best friendship by completing a friendship quality questionnaire. Participants were considered involved in a reciprocal best friendship dyad if they indicated each other as classroom best friend in the peer nomination procedure described above. We chose to limit the nomination procedure to classroom peers due to the specific characteristics of the Italian middle-school education system. In Italy, middle-school students generally remain in the same classroom (i.e., classrooms in which peers do not change) during their middle school years (grade 6th to 8th), and stay in the classroom all day (up to 8 hours/day) while teachers of different subjects rotate among the different classroom. Using this approach, 78 reciprocal best friend dyads were identified at T1. Given that participants were allowed to indicate only one best friend, all best friend dyads were unique, that is, no member of any dyad was also a member of another dyad. Eventually, the peer nomination procedure was administered again at the end of the school year (T2). By comparing participants' best friend nominations at T2 with those reported at T1, we computed a dichotomous indicator of individual friendship stability where 1 indicated stability in the nomination between the two time points, and 0 indicated a change in nomination at T2.

Overall, we found 48 of the 78 reciprocal dyads to be stable across the two time points (T1, T2). The remaining 30 dyads consisted of best friend dyads in which either one member (N=18) or both (N=12) did not confirm their best friend nomination to the other member at T2. The relatively low frequency of stable best friendships is consistent with findings indicating that more than half of middle-school friendships do not last an academic year (Bowker, 2004; Poulin & Chan, 2010).

Dyadic friendship quality. Participants completed the Friendship Quality Questionnaire (FQQ, Parker & Asher, 1993), a self-report questionnaire designed to assess multiple qualitative aspects of a child's "very best friendship", at the beginning (T1) and end (T2) of the school year. The questionnaire consists of 40 items and an initial "warm-up"

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item, each in the form of a statement about their best friendship. Items can be combined to form six subscales: Companionship and recreation (5 items), Validation and caring (10 items), Conflict and betrayal (7 items) Conflict resolution (3 items), Help and guidance (9 items), and Intimate exchange (6 items). Example items: “My friend and I always sit together at lunch”(Companionship and recreation), “My friend makes me feel good about my ideas” (Validation and caring), “My friend and I argue a lot” (Conflict and betrayal), “My friend and I make up easily when we have a fight” (Conflict resolution), “My friend helps me so I can get done quicker” (Help and guidance)”, and “My friend and I always tell each other our problems” (Intimate exchange). At each time point (T1, T2), participants rated on a 5-point scale (1 = ‘not all true’, 5 = ‘not all true’) how true each statement was for their current classroom best friendship. Thus, participants who nominated different best friends at T1 and T2 answered the friendship quality questionnaire by reporting about different best-friendship relationships at the two time-points. For this reason, in the present study analyses were performed on participants’ ratings as collected at T1, while ratings collected at T2 were not examined. As done by other authors (Rose & Asher, 2004), subscales were combined to obtain two total scores representing positive features of friendship (i.e., all subscales except for Conflict and betrayal) and friendship conflict (i.e., Conflict and betrayal). Scores were computed by summing students’ answers to items as assessed at T1. Cronbach's alpha for positive friendship quality score was .93, while for conflict it was .77. Correlation of friendship quality measures between reciprocal dyad members was found to be quite high (Conflict: $r = .44$, $p < .001$; Positive friendship quality: $r = .63$, $p < .001$). Eventually, for the purpose of APIM analyses, two dyad-level indicators of friendship quality (Dyadic positive friendship quality, and conflict) were computed by averaging the scores reported at T1 by participants involved in the same best friend dyad.

Data Analysis

As a first step, Pearson’s correlation coefficients were computed for all the study measures. Prior to the analyses with the APIM, the pairwise intra-class correlation coefficient (PICC; Zou & Donner, 2004) was used to investigate the within-dyad degree of non-independence on the friendship stability variable. For binary data, the PICC may be computed using the standard Pearson correlation coefficient; for large numbers of clusters ($k > 50$) it performs well as an approximation of the standard intra-class correlation coefficient (ICC, Zou & Donner, 2004). Unlike the standard intra-class correlation, however the PICC does not provide an estimate of the variance in the outcome attributable to cluster membership but only an estimate of interdependence between dyad partners. ICC was also computed on internalizing symptoms in order to investigate within-dyad non-independence on the predictor variables.

Prior to analyses with the APIM, all continuous variables were standardized to help interpretation and comparison of parameter estimates. The APIM was then implemented on the data using a generalized estimating equations (GEE) analytic approach. When modeling dyadic data with binary outcomes, the GEE approach can be viewed as an extension of the logistic regression model for independent data accounting for the non-independence of dyadic outcomes. Our choice to implement the APIM using GEE instead of other approaches (e.g., structural equation modeling, Olsen & Kenny, 2006; multilevel linear modeling) is consistent with recent findings indicating the GEE approach as being able to provide more accurate estimates of actor and partner effects when modeling binary outcomes, and also when the sample size is small (Loeys & Molenberghs, 2013). For the purpose of this study, dyads were treated in the analyses as *indistinguishable dyads* (i.e., dyads within which a specific ordering of members cannot be established), as is typical when analyzing same-sex best friendships (Olsen & Kenny, 2006). A conceptual formulation of the APIM for indistinguishable dyads for binary outcomes is the following:

$$\text{logit}(\text{Pr}(\text{Outcome} = 1)) = \beta_0 + \beta_1 * \text{Predictor}_{\text{Actor}} + \beta_2 * \text{Predictor}_{\text{Partner}} + \beta_3 * \text{Covariate}_{\text{Dyadic}}$$

That is, using the logit link function, the probability of observing the actors' outcome is modeled in the APIM using both actor and partner effects, and dyad-level covariates (also often referred as between-dyad variables). In the case of the APIM for indistinguishable dyads, members of the same dyad are generally modeled as repeated observations in order to control for dyadic non-independence. In our study, the APIM was used to test the effect of each actor's and his/her partner's symptoms of anxiety, depression and somatization on the stability of the actor's best friend nomination over time. We performed analyses employing a two-step approach. As a first step, actor and partner effects were examined in two separate models. Then, actor and partner effects were included in a single APIM. Placing both actor and partner effects in the model simultaneously allowed us to examine the relative importance of partners' effects, while controlling for actors' effects, and vice versa. Two measures of dyadic friendship quality at T1 (within-dyad average positive quality and conflict), and a dichotomous indicator of dyadic gender (1 = Female; 0 = Male) were included in the models as dyad-level covariates. Analyses were performed using the PROC GENMOD procedure in SAS by specifying the working correlation matrix as unstructured, as suggested by Loey and colleagues (2014) in the case of non-independent binary outcomes. The Wald Chi-Square (score) test was used to test significance of the parameter estimates.

Results

Descriptive Statistics and Correlations

Table 1 shows the main descriptive statistics and correlations for the employed measures (T1). A weak but significant negative correlation was found between the positive friendship quality and conflict scores. Significant correlations were also found between the

internalizing symptoms. Specifically, anxiety revealed positive correlations with both depression and somatization symptoms; in addition, somatization was found to be positively correlated with depression.

Significant correlations emerged also between the friendship quality measures and internalizing symptoms. The conflict score was found to be weakly correlated with depression and somatization symptoms. No correlations emerged between the positive friendship quality score and internalizing symptoms.

--- INSERT TABLE 1 ---

Analysis of Non-Independence

Prior to the analyses with the APIM we investigated within-dyads non-independence in the stability of best-friend nomination. Friendship nomination stability had a PICC value of .41, with an asymptotic standard error of .12 and confidence limits of .18 and .64, overall revealing medium-to-large non-independence between members of the same dyad on the outcome measure. This result indicates that, for members of reciprocated dyads, the decision to confirm (or alternatively, not confirm) the very-best friend status to the other member through nomination is more likely to be reciprocal than unilateral. The presence of non-ignorable interdependence on the outcome measure supported the adequacy of the APIM for the analysis of the dyadic data. Internalizing symptoms revealed only small interdependence in the dyads (Depression: ICC=.08; Anxiety: ICC=.09; Somatization: ICC=.08).

Actors and Partners' Internalizing Symptoms as Predictors of Actors' Friendship Stability

As a preliminary step to the estimation of the APIM model, two separate multilevel analyses were performed respectively evaluating the role of actors and partners' internalizing symptoms on actors' stability in nominating their partner across the two time-

points. In both analyses, dyadic friendship quality measures (positive, conflict) and actors' gender were included as controls.

Tables 2 and 3 show the results of these preliminary analyses: actor depression emerged as a significant negative predictor of actor's stability of friendship nomination at T2; in addition, partners' somatization emerged as a positive predictor of actors' choice to confirm their best friendship nomination at T2. In both models, dyadic positive friendship quality as assessed at T1 emerged as a significant positive predictor of actor's nomination stability at T2.

--- INSERT TABLE 2 ---

--- INSERT TABLE 3---

Results of the analysis with the APIM revealed both significant actor and partner effects. In particular, both actor and partner depression negatively predicted the stability of the actor best-friend nomination at T2. In turn, no significant actor and partner effects of anxiety emerged. Higher partner somatization symptoms at T1 were found to increase the likelihood of stability of the actor's best-friend nomination at T2. No significant actor effect emerged for somatization. As expected, higher dyadic positive friendship quality at T1 was found to increase the likelihood of stability of the actor's best-friend nomination over time. No significant effect was found for the dyadic conflict measure. No gender effect emerged.

--- INSERT TABLE 4 ---

Discussion

The main aim of the present study was to investigate the role of internalizing symptoms (i.e., depression, anxiety and somatization) reported by adolescents, involved in a reciprocal very best friend relationship, in predicting the stability of their best friend choice over time. By employing a longitudinal dyadic analytic approach, for each participant we were able to examine the role of both their individual and their best friend's symptoms in

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3 predicting their choice to confirm, or alternatively, disconfirm, the very best friend status of
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5 their initially indicated partner, while controlling for perceived friendship quality. In the
6
7 analyses, we also examined the role of gender and friendship quality as relevant covariates.
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9
10 Dyadic positive friendship quality was confirmed as a strong positive predictor of friendship
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12 continuation over time (Branje et al., 2007). In line with previous findings (Schneider,
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14 Fonzi, Tani & Tomada, 1997) dyadic friendship conflict did not reveal a significant effect.
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16
17 Concerning internalizing symptoms, both actor and partner effects emerged. Results
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19 from the present study indicate that symptoms of depression measured at the actor-level are
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21 associated with lower stability of the actor’s friendship nomination over time. This finding is
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23 consistent with other studies (Prinstein, Borelli, Cheah, Simon, & Aikins, 2005; Rose et al.,
24
25 2011) suggesting that depressive symptoms can have a disruptive effect on relationships
26
27 with peers, possibly due to increased perceptions of interpersonal difficulties, and by
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29 increasing withdrawal from peers. Similarly, actors’ decision to confirm the best friend
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31 showed a significant association with their partners’ depressive symptoms: Adolescents
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33 reporting high levels of depressive symptoms were less likely to be confirmed as a best
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35 friend by their peers when compared to less depressed ones. This finding is consistent with
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37 many findings indicating the negative impact of depressive symptoms on peer relationships
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39 in adolescence: Depressed adolescents tend to be less attractive and popular among peers
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41 than adolescents reporting lower depressive symptoms (Field, Miguel, & Sanders, 2001;
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43 Stice, Ragan & Randall, 2004). However, in our study the effect of partner depression was
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45 found to be significant only when controlling for actors’ symptoms, suggesting the existence
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47 of a suppression effect. That is, when both actor and partner effects were entered
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49 simultaneously in the model, it is possible that the presence of actors’ variables resulted in
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51 an increase in the magnitude of this relationship, inflating the relationship between the
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partner's depression and actors' friendship stability across the two time points. For this reason, this finding should be interpreted with caution.

In contrast with our findings on depression, no significant effect emerged when examining the role of adolescents' and their friends' anxiety symptoms in relation to the stability of their individual friendship choices. Literature on the impact of anxiety on peer relationship is somewhat inconclusive (La Greca & Harrison, 2005; Vernberg, Abwender, Ewell & Beery, 1992). Recent findings have suggested that moderate levels of non-clinical anxiety on the actor side may predict higher friendship stability (Rose et al., 2011). As stated above, this link was not confirmed in our study. To our knowledge, no previous study has examined the impact of anxiety symptoms of both members of reciprocal dyadic friendships on the stability of their friendship. As a result, a thorough comparison with previous findings is not possible. Further studies are needed to better clarify the role of anxiety symptoms in friendship selection and maintenance among best friendship dyads.

The link between somatization symptoms and stability of friendship nomination at the actor-level was not significant. Given the moderate correlation in our sample among depression and somatic symptoms, this result is not surprising and may indicate that the residual variance accounted by physical manifestations of distress in explaining individual friendship stability is negligible after controlling for negative affect. On the other hand, results regarding the effect of the partner's somatization symptoms on the actor's best friend nomination were unexpected. In our study, we found somatization symptoms as measured at the partner-level to positively predict stability of the actor's best friendship nomination. This could indicate that symptoms which are acted out primarily at a physical level may more likely elicit feelings of caring and support among mutual friends. Combined with results about depressive symptoms, this finding suggests that the impact of adolescents'

internalizing symptoms on the stability of their partners' friendship nomination may be in part dependent on the nature of such symptoms.

As already stated by Hill and Swenson (2014), the association between internalizing problems and friendship is a complicated one. Nevertheless the present study highlights that internalizing symptoms are not always detrimental to friendships; rather, in some cases, these symptoms may favor friendship stability. In fact, our findings indicate the existence of different patterns of relationships in predicting the stability of best friend choices of reciprocal friends when respectively examining the role of their own and their friends' internalizing symptoms. Results also suggest that by investigating different facets of internalizing symptoms, as opposed to global indexes, differential roles may emerge. However, it is important to note that in our study we examined only data coming from a non-clinical sample. Literature on clinical samples concerning the relationship among internalizing symptoms and friendship stability is lacking. Future research should address this issue.

The results of the present study should be understood in light of some limitations. First, the use of a small convenience sample indicates that caution should be applied in generalizing findings to other grade groups and the overall population. An additional limitation relates to the employed friendship nomination procedure. By limiting the very best friendship nomination procedure and friendship quality assessment to only one classroom peer, we compromised our ability to detect important information concerning the characteristics of adolescents' best friendships network, and to evaluate if the importance of friendship quality in predicting friendship stability varies among friendships with different levels of closeness.

The present study also failed to investigate other characteristics that may be important for the stability of friendship over time, such as friendship length, and the degree

of similarity (or dissimilarity) of the dyad's members on the study measures (Hartl et al., 2015). Examining similarity effects represents a natural extension of our findings. However, given the small sample-size employed in our study, statistical power concerns limited our ability to examine similarity/dissimilarity effects. For this reason, no information concerning the relative role of individual and dyadic-level (e.g., within-dyad average, dissimilarity) internalizing symptoms can be drawn from the present study. Future studies with larger samples might help clarify the relative importance of adolescents' internalizing symptoms, and their similarity amongst friends, in influencing friendship continuation.

Finally, the current study relied on self-report measures about friendship dyads; the use of qualitative instruments, such as observation or interviews, in addition to the questionnaire could also have strengthened our research. In fact, qualitative instruments may help further our understanding of internalizing symptoms and friendship's stability association.

This study also had several strengths. First, this study employed a longitudinal design. As a result, we were able to monitor specific friend's selection behaviors over time. Second strength was the implementation of an Actor-Partner Interdependence Model. By employing a dyadic analytic approach, we were able to highlight the role of internalizing symptoms as assessed from both members of a reciprocal dyad in relation to each members' individual friendship choices. Finally, by investigating a set of internalizing symptoms instead of global composite index of distress, we were able to distinguish among different sources of effects on friendship stability. Findings from the present study highlight the relevant role of adolescents' depression symptoms in promoting friendship dissolution. In turn, results suggest that manifesting distress at the physical level may promote friendship continuation. As a whole, this study provides novel findings highlighting the role of internalizing symptoms in friendship continuation in early adolescence.

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For Peer Review

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Table 1

	1	2	3	4	Mean	S.D.
1 Positive friendship quality					115.10	24.33
2 Friendship conflict	-.22*				20.26	5.77
3 Anxiety	.04	.10			13.59	4.14
4 Somatization	.07	.18*	.20*		6.67	1.90
5 Depression	-.09	.17*	.36**	.56**	19.27	5.23

Descriptive Statistics and Correlation among the Study Measures (T1) (N=156)

Table 2

Actors' Internalizing Symptoms as Predictors of Actors' Friendship Nomination Stability, Controlling for Dyadic Friendship Quality and Gender

	B	S.E.	Odds Ratio	Wald Chi-Square	df
Actor - Anxiety	0.40	0.22	1.50	3.23	1
Actor - Depression	-0.50	0.25	0.61	3.93*	1
Actor - Somatization	0.23	0.22	1.26	1.09	1
Dyadic positive friendship quality	0.67	0.28	1.95	5.69*	1
Dyadic friendship conflict	0.14	0.24	1.15	0.36	1
Gender (0=Female, 1=Male)	-0.44	0.46	0.64	0.93	1

* p < .05

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Table 3

Partners' Internalizing Symptoms as Predictors of Actors' Friendship Nomination Stability, Controlling for Dyadic Friendship Quality and Gender

	B	S.E.	Odds Ratio	Wald Chi-Square	df
Partner - Anxiety	-0.08	0.23	0.92	0.13	1
Partner - Depression	-0.28	0.28	0.75	1.05	1
Partner - Somatization	0.47	0.21	1.60	5.18*	1
Dyadic positive friendship quality	0.69	0.29	2.00	5.56*	1
Dyadic friendship conflict	0.12	0.24	1.13	0.25	1
Gender (0=Female, 1=Male)	-0.38	0.45	0.69	0.71	1

*p < .05

Table 4

Actors and Partners' Internalizing Symptoms as Predictors of Actors' Friendship Nomination Stability, Controlling for Dyadic Friendship Quality and Gender

	B	S.E.	Odds Ratio	Wald Chi-Square	df
Actor - Anxiety	0.51	0.26	1.66	3.83	1
Actor - Depression	-0.78	0.26	0.46	9.32**	1
Actor - Somatization	0.48	0.25	1.62	3.75	1
Partner - Anxiety	0.05	0.23	1.06	0.05	1
Partner - Depression	-0.62	0.29	0.54	4.72*	1
Partner - Somatization	0.71	0.26	2.03	7.35**	1
Dyadic positive friendship quality	0.61	0.28	1.84	4.76*	1
Dyadic friendship conflict	0.12	0.24	1.13	0.27	1
Gender (0=Female, 1=Male)	-0.58	0.49	0.56	1.39	1

*p < .05, **p < .01